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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/648,630

08/25/2003

Ernst B. Carter

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EXAMINER

SANDOVAL, KRISTIN D

ART UNIT

PAPER NUMBER

2132

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/648,630	Applicant(s) CARTER ET AL.	
	Examiner KRISTIN D. SANDOVAL	Art Unit 2132	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45, 47-52 and 59-71 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 70 and 71 is/are allowed.
- 6) ☒ Claim(s) 1-15, 17-39, 41-45, 47-52 and 59-69 is/are rejected.
- 7) ☐ Claim(s) 16 and 40 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-45, 47-52 and 59-71 are pending. Claims 46 and 53-58 are cancelled.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 19, 2008 has been entered.

Response to Arguments

3. Applicant's arguments with respect to claims 1-45, 47-52 and 59-71 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-45, 47-52 and 59-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over rejected under 35 U.S.C. 103(a) as being unpatentable over Marino et al. (Marino), U.S. Patent No. 5,029,206 in view of Ote et al. (Ote), U.S. Patent No. 6,023,506.

As per claims 1-3, 26 and 48:

Marino discloses a computer system with a memory portion configured to store data comprising:

a processor;

a first device having an operating system kernel, the operating system kernel configured to encrypt clear data using an encryption key to generate cipher data, the first device further configured to decrypt the cipher data using the encryption key to generate the clear data; and

a second device coupled to the first device and configured to exchange cipher data with the first device (3:1-38).

Marino fails to teach encrypted filenames and encrypted locations of data file names and decrypting the filename and location of the encrypted data file and re-encrypting the filename and file location when transferring the data file back from the secondary device to the memory. However, Ote discloses encrypting filenames and locations and decrypting filenames and locations in order to access data files (10:3-12, 11:33-13:29). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to encrypt filenames and locations of data file in order to increase the security of the data file while still having the process be invisible to the user as taught by Ote (1:54-65).

5. Claims 59-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marino in view of Ote as applied to claims 1, 26 and 48 above, and further in view of Sarfarti et al. (Sarfati), U.S. Patent No. 6,938,166.

As per claims 59-69:

Marino and Ote substantially teach encrypting and decrypting a file with an encryption key (3:1-38). Marino and Ote fail to teach a different encryption key for encrypting and decrypting a directory which includes encrypting filenames and data blocks and comparing a target directory name to possible directory names, however, Sarfati discloses a separate encryption key for encrypting and decrypting a directory which includes encrypting its contents and comparing the decrypted target directory signature with possible directory signatures (abstract, 5: 66-6:29). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to encrypt a directory in order to increase the security of the directory.

6. Claims 4-7, 9, 11, 14, 15, 17, 18, 27-29, 36-39, 41 and 49-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marino in view of Ote in view of Sarfati and further in view of Noble et al. (Noble), U.S. PG-PUB 2003/0005300.

As per claims 4-7, 27-29, 36-39 and 49-51:

Marino, Ote and Sarfati substantially teach a method of encrypting data, the method comprising: receiving clear data; and executing kernel code in an operating system, the kernel code using a key to encrypt the clear data to generate cipher data, the kernel code further using the key to decrypt the cipher data to generate the clear data (3:1-38).

Marino and Ote fail to teach an encrypted directory however, Sarfati discloses encrypting a directory (abstract, 5:66-6:29). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to encrypt a directory in order to increase the security of the directory.

Marino, Ote and Sarfati fail to disclose the use of a symmetric key encryption algorithm based on a block cipher wherein the algorithm comprises Rijndael and the block size is 128 bits.

However, the Rijndael symmetric key encryption algorithm based on a block size of 128 bits was well known in the art at the time of applicant's invention as discloses in Noble. Noble teaches the use of the Rijndael symmetric key encryption algorithm based on a block cipher with a block size of 16 bytes in a similar field of endeavor (paragraphs 0087-0093).

It would have been obvious to one of ordinary skill in the art at the time of applicant's death to utilize the Rijndael algorithm because it was approved to be the AES standard, offering better security in addition to offering superior performance, particularly in key set-up as taught by Noble (paragraph 0090).

As per claims 9, 11 and 39:

Marino, Ote and Sarfati fail to disclose the symmetric encryption algorithm comprising DES or BLOWFISH. However, DES and BLOWFISH were well known in the art at the time of applicant's invention as demonstrated by Noble. Noble discloses interchanging Rijndael with BLOWFISH in making comparisons with other encrypting file systems (paragraph 0119) and utilizing DES in another file encryption system CFS (paragraph 0145).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to test and try other symmetric encryption algorithms in order to compare performance as suggested in Noble (paragraph 0119).

As per claims 14, 15, 17, 17, 18 and 41:

Marino, Ote and Sarfati substantially teach a memory portion comprising a first logical protected memory configured to store encrypted file data and the file names associated with them and a second logical protected memory configured to store key data. And further comprising an encryption key management system, the encryption key management system configured to

control access to the encrypted file data and only if certain access permissions have certain values (3:1-38, 6:16-20, 7:26-35).

Marino, Ote and Sarfati fail to teach the file names and keys being encrypted. However, Noble discloses both file names and keys being encrypted (paragraphs 0088-0093, 0090-0108, 0053). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to encrypt both the file names and the keys in order to increase security against physical attacks as suggested by Noble (paragraph 0041).

7. Claims 8, 10 and 30 rejected under 35 U.S.C. 103(a) as being unpatentable over Marino in view of Ote in view of Noble and further in view of Schrader et al. (Schrader), U.S. Patent No. 5,903,881.

As per claims 8, 10 and 30:

Marino, Ote and Noble fail to disclose the use of Triple-DES as the symmetric key encryption algorithm and a symmetric key of at least 1024 bits. However, Triple-DES and a 1024 bit encryption key were well known in the art at the time of applicant's invention as demonstrated by Schrader. Schrader utilizes 1024 bit Triple-DES to encrypt a file for a banking transaction (17:12-21). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to utilize 1024 bit Triple-DES in order to strengthen the encryption and thus the security of the system as a whole.

8. Claims 12, 13 and 52 rejected under 35 U.S.C. 103(a) as being unpatentable over Marino in view of Ote in view of Noble and further in view of Fish et al. (Fish), U.S. Patent No. 5,727,206.

As per claims 12, 13 and 52:

Marino, Ote and Noble fail to disclose the use of a Unix System-V Revision operating system. However, Unix System-V Revision was well known in the art at the time of applicant's invention as demonstrated by Fish in a similar field of endeavor. Fish discloses the use of the Unix SVR4 with a CFS system as mentioned in Noble (12:22-32). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to use a Unix SVR4 operating system because the use of vnodes makes integration more seamless as taught by Fish (12:22-32).

9. Claims 19, 21, 32 and 44 rejected under 35 U.S.C. 103(a) as being unpatentable over Marino in view of Ote in view of Noble and further in view of Basu et al. (Basu), U.S. Patent No. 6,836,888.

As per claims 19, 21, 32 and 44:

Marino, Ote and Noble fail to teach a secondary device being accessed through file abstraction and the secondary device comprising a swap device.

However, a swap device and file abstraction were well known in the art at the time of applicant's invention as shown in Basu. Basu discloses kernel memory linked to a swap device that is accessed through vnodes which supports file abstraction in Unix systems (11:34-55). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to utilize a swap device accessed through file abstraction because file abstraction allows continuity across various platforms to the user.

10. Claims 20, 31 and 43 rejected under 35 U.S.C. 103(a) as being unpatentable over Marino in view of Ote in view of Noble and further in view of Magee et al. (Magee), U.S. Patent No. 5,729,710.

As per claims 20, 31 and 43:

Marino, Ote and Noble fail to teach a secondary device comprising a backing store. However, backing stores were well known in the art at the time of applicant's invention as demonstrated by Magee. Magee teaches kernel memory being bound to a backing store (35:34-41). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to use a backing store because it would lower the overall cost of implementation and allows for a place for instructions before being stored in main memory.

11. Claims 22-24, 33-35, 45 and 47 rejected under 35 U.S.C. 103(a) as being unpatentable over Marino in view of Ote in view of Noble and further in view of LaRue, U.S. Patent No. 6,477,545.

As per claims 22-24, 33-35 and 45-47:

Marino, Ote and Noble fail to teach the secondary device being a socket connection or communication channel comprising the Internet. However, a socket connection and communication channel comprising the Internet were well known in the art at the time of applicant's invention as demonstrated by LaRue. LaRue discloses the use of communication channels that support and include socket connections that are opened between nodes over the Internet (6:56-7:25). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to utilize socket connections and communication channels to connect memory to the Internet in case of sending information over the Internet to another client or to a remote storage site.

12. Claim 25 rejected under 35 U.S.C. 103(a) as being unpatentable over Marino in view of Ote in view of Noble and further in view of Chien et al. (Chien), U.S. PG-PUB 2002/0065876.

As per claims 25:

Marino, Ote and Noble fail to teach encrypting and decrypting the pathname to the encrypted files. However, Chien discloses a method which checks to see whether or not a directory contains encrypted files and if it does it encrypts the entire pathname (paragraph 0238). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to encrypt the pathname to the encrypted files in order to increase the security of the encrypted file since it would be more difficult for someone to located the file.

Allowable Subject Matter

13. Claims 16 and 40 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. Claims 70 and 71 allowed.

The following is an examiner's statement of reasons for allowance:

The prior art of record (Marino and Sarfati) discloses an encrypting file system that encrypts filenames and file contents however, Marion and Sarfati fail to disclose utilizing a pass key and a filename to generate an encrypted filename key then use the encrypted file name key and file contents to produce an encrypted file contents key and encrypt the file contents with the encrypted file contents key to generate encrypted file contents.

None of the other references cited in the prior action combine with Marino or Sarfati to disclose this limitation.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KRISTIN D. SANDOVAL whose telephone number is (571)272-7958. The examiner can normally be reached on Monday - Friday, 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on 571-272-3799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kristin D Sandoval
Examiner
Art Unit 2132

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Examiner, Art Unit 2132

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